

SYNCHRONIZATION METHOD FOR A PROCESSING  
COMMUNICATION SATELLITE

## ABSTRACT OF THE DISCLOSURE

5           The present invention provides a highly accurate  
synchronization method for a satellite communication system  
(100). The system maintains a downlink symbol counter at an  
earth terminal and determines a downlink symbol count  
representative of the time of arrival of a burst transmitted  
10       from the earth terminal to a satellite (106, 206). The earth  
terminal adjusts the downlink symbol counter to correspond to  
the downlink symbol count (136, 220) upon arrival of a  
predetermined reference point in a downlink frame. A timing  
error may initially be determined by launching an entry order  
15       wire from the earth terminal to the satellite (116). The  
timing error may be transmitted to the earth terminal using a  
correction code which indicates the transmission is early,  
late, absent, or no change is required (134, 218). The  
terminal may make additional periodic timing adjustments based  
20       on the length of the propagation path between the earth  
terminal and the satellite (108, 208). The earth terminal may  
then precisely time the transmission of bursts from the earth  
terminal to the satellite (130, 214). The length of the  
propagation path and the timing error may be stored in the  
25       earth terminal so that the earth terminal may reenter the  
system without undertaking multiple commissioning processes.